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THE UTILIZATION OF SOUTHERN WASTES

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Saving labor in one direction and creating an enormous demand for labor in another, the invention of the cotton gin more than a hundred years ago caused an immeasurable waste of material and energy in the South. It hastened the passing of slavery in the North, but strengthened the institution in the South, giving the plantation the premiership and halting, though not destroying, the natural mechanical bent of the whites. It changed the course of American industrial tendencies, and diverted the flow of commerce. It made the history of the United States. It resulted in the evolution in the South of a system of agricultural labor unsurpassed in effectiveness in spite of its costliness. It supplied the raw material for industries both at home and abroad, and at the same time created a great market for manufactured articles and farm products.

But its consequent benefits were enjoyed by a minority of the Southern people. Not more than 30 per cent of the Southern white families in 1860 were owners or hirers of slaves. Their real and personal property dominated a situation giving the South more wealth per capita than the rest of the country—a situation well typed in 1850, when the per capita wealth of the whole country being $304, that of South Carolina was $431, the 384,984 slaves being included in the population of 668,507. Yet, at that very time, it was estimated by the governor of the state that among its white inhabitants there were not less than 50,000 persons whose employment was not sufficient to give them the honest support every white citizen felt himself entitled to. Conditions in South Carolina were, perhaps, exceptional in some respects, but they fairly illustrate general Southern conditions. During the ten years before the Civil War the chance for the depressed classes to become economically valuable was somewhat bettered, especially in those portions of the South where slavery was slowly and naturally disappearing under the practical impulse that had destroyed it in the North. Then came the war with its enormous waste of human energy, life and wealth. It brought the great mass of whites to a common level of poverty. In the consequent struggle for the maintenance of race integrity they were practically debarred from production, except to meet bare necessities, and the negro race, which had never advanced except as it was guided or controlled by white intelligence, was suddenly placed in a position calling for self-reliance with its younger generation subjected to methods of training, which converted them from possible producers of thorough efficiency into thriftless dawdlers or positive parasites. The South received practically nothing of that immigration, which, after the war, gave such an enormous impulse to the development of the North and West. As a result of the war, it lost potentiality through the disorganization of an important element in its labor system.

One at first thought may not readily understand that the direct and indirect wastes of the past forty years have created the opportunity for the utilization of other wastes. Investments in Southern cotton mills, equipping them with the best machinery, need not include the money sent to the scrap pile in the shape of antiquated machinery. A mass of labor, long dormant because of a comparatively narrow field for its employment, has been given freedom at last to follow its natural inclination. Costly industrial experiments have been tried elsewhere, but the South as a whole, with its natural resources lying fallow, has escaped them and their accompanying evils. It is in a position to profit by the experience elsewhere without any great loss of time and money, or waste of energy and material.

Seventy years ago oil was made from cottonseed in Mississippi, and, subsequently, at Mobile, Ala., Petersburg, Va., New Orleans, La., and other points, the seed was a basis of industry. Far-seeing minds of that day sketched the part that the products might play in cattle feeding, in the manufacture of soap and candles, in lubrication, painting, illumination and as a food. About that time the legislature of Mississippi passed a law to compel cotton gins to remove promptly or to destroy all cotton seed, so that the same might not become a prejudice to the health of the community. The general practice was to get rid of the seed by dumping it into running water or letting it rot, though there was an early use of it to a limited extent as a fertilizer. It was not until about 1870 that the cotton oil mill began to assume any importance in industry, and ten years later there were but 45 mills in the South with a capital of about $3,500,000. The census of 1900 reported 369 establishments engaged solely in extracting the oil, with a capital of $34,451,461 and a value of crude products only of $42,411,835, only 55 per cent of the seed produced in the South being crushed.[1] It is estimated that the total annual value of the product of the 700 oil mills, not including the output of enterprises dependent in part upon oil mills, approached $125,000,000, while the value of the lint cotton in that year was $360,000,000. The short lint secured in re-ginning the seed at the oil mill is manufactured into cotton batting. The hulls become fuel, ashes, fertilizer, fibre, paper and cattle feed. The meats become cake and meal used for fertilizer, cattle feed and crude oil. This last in various processes becomes soap stock and soap, the stock mixed with other greases appearing in the cylinders for phonographs, winter yellow oil, cottonseed stearin, a basis for butter and salad oils, including not a little of the substance imported as olive oil, summer white oil, a basis for lard and cottolene and miners' oil.

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[1] An estimate made in April last placed in the Cotton Belt 702 cotton oil mills built and in course of construction, with 50 or 60 new ones chartered, the mills with their refineries and other auxiliary features representing an investment of $225,000,000.

Fifty years ago objection was made to the cottonseed oil mill on the ground that it prevented the return of nutriment to the land, and consequently tended to impoverish the soil. Today the contention has been made that the most productive use of the cotton seed is in feeding it to cattle, enriching the soil with the manure and selling the cattle as beef. It is also argued that the mills paying the biggest prices for the best seed is resulting in the raising of inferior cotton. Both of these possible evils, not always inseparable from the early career of a new industry, may be overcome through the attraction to the South of the packing-house industry because of the value of cottonseed to it.

In the packing industry the blood of animals was once allowed to drain away, and the removal of such stuff as heads, feet, tankage, etc., was paid for. Now, blood, bones, horns, hoofs, hides, sinews, trimmings, etc., are transformed into tallow, soap, glue, gelatine, bristles, hair, felt, soap powders, glycerine ammonia, bone meal, poultry food, albumin, neats for oil, pepsin, knife handles, buttons, fertilizers and a host of other articles. The packer by making a chemical fertilizer of use in the cotton field, by using the cotton oil stearin in the manufacture of compound lard and cooking butters, and through his need of the cottonseed meal for feeding purposes, has begun to move to the South, nearer to the cattle-raising sections of the South-west. During the past past ten years at least $20,000,000 have been invested in abattoirs and meat-packing plants in the South, exclusive of local slaughter-houses and minor packing establishments, while about $8,000,000 of the packer's capital have been invested in the manufacture of fertilizer. This is but a small proportion of the millions engaged in the Southern fertilizer industry in which cottonseed plays such an important part.

That southward movement is but a part of the general tendency of manufacturing capital to get as close as possible to the sources of raw material, exemplified most notably, in a cotton mill built by New England manufacturers in the cotton field of Alabama, using as fuel coal from a vein which was struck in digging the foundations of the mill.

The southward movement has been hastened by the exhaustion of raw material in other parts of the country. In part, that is why the capital invested in lumbering in the South increased between 1880 and 1900 from $23,546,076 to $181,702,526, the latter sum being half a million dollars greater than the total capital invested in lumbering in the whole country in 1880. That is why the value of the lumbering products in the South increased in the twenty years from $39,930,432 to $188,114,524. It is regrettable that the South has not been free from the wasteful methods in handling its timber that have desolated vast regions elsewhere. The results of such methods appear in the apprehension that the time may not be far distant when the South's importance in the naval stores trade shall have waned. In 1900 the capital invested in the turpentine industry producing resin, spirits of turpentine and rosin was $11,847,495, employing about 42,000 persons and producing to the value of $20,344,888. About that time Dr. Charles H. Herty, a professor at the University of Georgia, began to study the methods of the workers among the long leaf pines, and his investigations, re-inforced and expanded under the auspices of the national Bureau of Forestry, are bringing about a modification for the better in turpentining. He found that boxing the trees not only speeded their end, but did not secure all the possible product. He introduced a system of cups and gutters which in the first year of its trial resulted in an increase of 23 per cent in the product for a given number of trees. This increase, according to a recent statement of the bureau, has been raised to 36 per cent. In two years the number of cups in use has increased from 20,000 to 3,000,000, and the readiness of the operators to accept the new system is indicated by the fact that a pottery company that planned to supply them with the earthen cups has been unable to fill its orders as fast as they have been received and has been obliged to decline orders for more than 2,000,000 cups.

The supply of turpentine seems likely to be maintained for some years by the chemical treatment of dried pine knots, stumps, and the waste of cut-over timber lands, through what is known as the destructive distillation process. This was attempted as early as thirty odd years ago, but unsuccessfully. Interest in it has revived with the growing demand for turpentine and with the recent perfecting of apparatus. It is claimed that at one of the eleven plants using this special apparatus, ten cords of ordinary pine yielded in 36 hours distillation

960 gallons, which by separation gave 260 gallons of turpentine, 200 gallons of creosote, 100 gallons of oil of tar and 300 gallons of tar with about 100 gallons of acid waste. From ten cords of rich fat pine the average yield in the same time was 1,337 gallons of crude distillates, from which were derived 352 gallons of turpentine, 250 gallons of creosote, 150 gallons of oil of tar and 400 gallons of tar with 185 gallons of acid waste. Men who have studied this question are convinced that conducted upon a scientific and business basis, the process will yield rich results. Certain it is that pine stumps have risen in value and plants are in course of erection in different parts of the South.

Already, too, men are seriously discussing the feasibility of combining sawdust and cement, or some other binder, in the manufacture of fence posts. We have read newspapers printed in Texas upon the fabric of pine shavings, and this response to the search for material for paper points also to rice straw, while the reported lack of success from the economic standpoint in the use of bagasse, the waste of the sugar-cane, has not deterred other enterprise in that direction, for within the past few weeks, it has been announced that Boston capital will establish near New Orleans a mill to reduce bagasse to pulp to be used in the manufacture of paper board.

Coincident with these efforts to make the waste of lumbering available in industry, there has been a decided movement in the South for scientific forestry in coöperation with the Bureau of the Agricultural Department or on independent lines. In the plan for a great forest reserve in the southern Appalachians, which has a national support, an impetus has been given to the development of another natural resource of the South, its water powers. In the early days, the water powers of the South, free all the year round, were held to be one of its chief advantages in manufacturing. Some of them were used locally, and the canal idea for the transportation of such power was developed on a modest scale. But hundreds of thousands of horse power continued to be lost for fifty years, and only recently has an adequate attempt been made to capture the rivers for direct or indirect use in manufacturing. Now, considerable progress has been made with the James at Richmond, with the Roanoke at Roanoke Rapids, with the Chattahoochee at Columbus and Atlanta, with the Savannah at Augusta, with the Tallapoosa at Tallassee Falls, including a system of transmission to Montgomery and at other points, while plans for the development of the Appomattox in Virginia, of the Catawba in North Carolina, of the Ohio at Louisville, of the Tennessee at Chattanooga, of the Black Warrior and its tributaries in Alabama, of the Yadkin in North Carolina, of the Colorado in Texas, and of other streams, are already being carried out or are being seriously considered.

Did time permit, one might give more than mention to the possibilities in the re-claimation of swamps, overflowed alluvial lands, and stretches of prairie. A thought of what has already been accomplished in rice-growing under modern methods in southwest Louisiana and southeastern Texas, and of the 30,000 square miles of the richest soil in the world in Arkansas, Mississippi and Louisiana which will be brought under cultivation by the proper improvement of the Mississippi River and its tributaries, will indicate Southern potentialities in this field.

Most of the projects for the utilization of Southern wastes are under way; others are still to be undertaken.

Preliminary to the realization of such aims must be the utilization of what is, perhaps, the greatest waste in the South, the waste of human energy through neglect or through mis-direction. As we survey the past twenty years against the somber background of the twenty years earlier forbidding aught save hope, we are justified in congratulating ourselves upon the recent material progress of the South. The advance between 1880 and 1900 in the value of farm properties from $2,290,364,321 to $3,951,631,632, and of farm products from $660,131,452 to $1,271,654,273; in the amount of capital invested in manufacturing from $257,244,561 to $1,153,202,368; in the value of manufactured products from $457,454,777 to $1,463,643,177; in railroad mileage from 20,612 to 52,594; and in the value of exports from Southern ports from $261,214,904 to $464,316,943, could hardly have been paralleled by any other country situated as was the South in 1880.

With but 27 per cent of the land area of the country and with its population increasing during twenty years 44 per cent, while that of the rest of the country augmented by immigration increased 55 per cent, the South's investment in agriculture increased 72 per cent, while that in the rest of the country increased 65 per cent; the South's capital in manufacturing increased 348 per cent, while in the rest of the country it increased 242 per cent; the value of the products of Southern factories increased 219 per cent against an increase of 135 per cent in the rest of the country, and to-day, while sending through its ports 35 per cent of the exports of the country, the South is producing about 40 per cent of the total exports. There is the record of accomplishment and of wonderful accomplishment if the matter of percentage of increase is alone considered.

But there is another way of looking at the subject. A hint is given in the fact that though the value of farm properties in the South increased at a greater rate than in the rest of the country, the contrary was true for the value of farm products. As a matter of fact, in certain particulars, such as the production of grain and the raising of live stock, the South is not as well off agriculturally as it was in 1860, in spite of the increase in population. In certain of the older States the per capita production of grain is less. While the actual number of neat cattle is greater, the 15,000,000 owned by the South in 1900 are a smaller proportion of the 50,000,000 in the country than were the 8,500,000 in the South of the 17,000,000 in the whole country in 1860. Moreover, their number was actually smaller in 1900 than in 1860 in half a dozen of the States, while in the forty years there was a decrease in the whole South of more than 1,000,000 in the number of sheep and of more than 950,000 in the number of swine. Again, while the South is pre-eminently, as it long has been, the producer of the cotton, the sugar-cane, the rice and the bulk of the tobacco and sweet potatoes of the country, it raised in 1899 but 28 per cent of the corn of the country as against 44 per cent in 1860, and but 12 per cent of the wheat as against 26 per cent in 1860. In spite of its unexcelled advantages of climate and soil it raised, however, in 1899 but 21 per cent of the small fruits of the country, 18 per cent of orchard fruits, 17 per cent of the hay and forage, 11 per cent of Irish potatoes, and 7 per cent of the oats. In the census year the number of persons engaged in agriculture in the South was 5,127,035, and they produced $248 per capita. In the rest of the country the 5,254,730 persons engaged in agriculture produced $655 per capita. The showing in manufacturing is somewhat better for the South than in agriculture, notwithstanding the fact that the South has so long been regarded as a distinctively agricultural section. For, while the 4,529,120 wage earners in industry in the rest of the country were occupied in production to the value of $11,546,393,337, or $2,549 per capita, the 785,419 Southern wage earners were concerned in production to the value of $1,463,643,177, or $1,863 per capita.

In making these comparisons it must be remembered, of course, that persons engaged in agriculture include the employing class as well as the employed, while in manufacturing, only those employed at wages are included. In agriculture the class corresponding to the wage earners in manufacturing represents but about 42 per cent of all engaged in agriculture, while the wage earners represent about 90 per cent of all engaged in manufacing. It should be noted, too, that much of the manufactured production of the South is the result of what may be called the primary movements in industry, such as lumber, cotton yarn, pig iron and crude petroleum, representing, perhaps, a greater weight, but a smaller price than the results of second and third and fourth handling of this material in other parts of the country. A thought of the difference between the value of a pig of iron at Birmingham, Ala., and its value at Waltham, Mass., after it has been converted into steel watch springs, will convey an idea of the difference, broadly speaking, between manufacturing in the South and in the rest of the country. But even in this respect a change is underway in the South. Fine cotton goods are made there, as well as yarn, and the tendency is very rapidly toward diversification and the making of finer goods. High Point, N. C., is a vigorous rival in furniture-making of Grand Rapids, Mich. Around the furnaces of northern Alabama have grown pipe works, car works, steel, wire and rail mills. On the Texas coast where oil was discovered only three years ago, millions of barrels are being refined for shipment coastwise and to foreign ports.

Still, all that should be done is not done, either in agriculture or in manufacturing. That is not because the South is not fully at work. The increase in the assessed value of property there between 1880 and 1900 from $3,051,175,098 to $5,457,553,031 and between 1900 and 1902 to $5,916,960,712, or at the rate of nearly $230,000,000 a year, is a fair indication of energy, even allowing for changes in assessment schedules. There is another even more significant fact. There are more persons in proportion to the population engaged in gainful occupations in the South than in the rest of the country. But the females constituting 16 per cent of the persons engaged in agriculture in the South, including, of course, the large number of female negroes in the fields, are a mark of the comparative backwardness of farming there not to be overcome by natural advantages. Women constituting 25 per cent of the persons in mechanical pursuits in the rest of the country, mark of the highest development of the age of machinery with its effectiveness in production. The contrast is the broad distinction between industrial conditions in the South and in the rest of the country.

It is the immediate explanation of the fact, modified though it may be by the enormous contributions of Southern agriculture and manufacturing to the commerce and the industry of the rest of the country, that the South is not making as much of its opportunities for wealth production as is the rest of the country.

The opportunities are here, but neither are there a sufficient number of persons to develop them, nor are the number available sufficiently qualified to develop them completely. The lumber camp, the oil mill, the mine, the furnace, and railroad construction attract the negro males from the plantation and the farm. Wherever the heavy work of Southern industry is under way, there will be observed a tendency of negro males to outnumber the females. The cotton mills in the older states attract the whites from the small cotton farms, the movement being checked now and then by high prices for the staple. Thus there is a halting of growth in one direction with an undue acceleration in another. In some respects the South may be regarded as burning its garments to keep itself warm, and that too, under the most strenuous economic compulsion.

For the primary remedy the South needs inhabitants. In its 807,045 square miles there are but 23,548,401 persons, or 29.1 to the square mile. What this average really means appears from the fact that the density of Ohio is 102, of Indiana 70, and of Illinois 86. The South must let it be known that it has abundant offerings for the farmer and equally abundant places for the worker in other industries. With all its progress it is still very, very far behind such a section as New England, with 90 persons to the square mile, largely dependent directly or indirectly upon products of the South for the means to exercise their talents as wealth producers.

With increased population and better means of communication and greater wealth flowing from that increase, the South will be in a better position to provide the means for the proper education of its workers, and in the elaboration of the plans already mapped in the broadest sort of way will, in wisdom born of experience, evolve a readjustment of its labor system, permitting the individual to advance with the least waste of energy and of time upon lines most productive for the community.